

CATALOGUE OF THE SPECIES OF CORALS BELONGING TO THE
GENUS MADREPORA, CONTAINED IN THE UNITED STATES
NATIONAL MUSEUM.

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The U. S. National Museum has been the recipient of two important type collections of corals, which have now been in its possession for many years. The first of these was obtained by the United States Exploring Expedition around the world, from 1838 to 1842, under command of Capt. Charles Wilkes, U. S. N., and the second by the North Pacific Exploring Expedition from 1853 to 1856, under command of Capts. C. Ringgold and John Rodgers, both of the U. S. Navy. The collection of corals made by the former expedition was especially large and fine, and formed the basis of Professor Dana's classical monograph,* the most important and comprehensive work on corals that had been published up to that time. Professor Dana was a member of the civilian scientific staff of the expedition, and thus had an opportunity of examining in their natural state the objects which he was destined to bring so prominently to the attention of naturalists. His observations on the living animals of many species are of great interest and add much to the value of his report.

The Anthozoa of the North Pacific Exploring Expedition, of which the late Dr. William Stimpson was naturalist, were referred to Prof. A. E. Verrill, then of the Museum of Comparative Zoology, at Harvard College, and his results were published in several numbers of the Proceedings of the Essex Institute, of Salem, Mass.†

The coral collection of the United States Exploring Expedition did not come into the possession of the National Museum until some years after it had been returned to the Government by Professor Dana, and in that interval it suffered greatly from the loss of specimens, the injury of delicate species, and the misplacement of labels. The original catalogue of the corals is not known to be in existence at the present time, and there is no way of ascertaining the actual loss, but it amounted to a large proportion of the specimens. Many specimens were lent to the Museum of Comparative Zoology, when Professor Verrill was an assistant there, and these received the benefit of a careful revision at his hands. The same naturalist also visited the National Museum and replaced a number of the missing labels. Professor Dana's method of

* United States Exploring Expedition, during the years 1838, 1839, 1840, 1841, 1842, under the command of Charles Wilkes, U. S. N., Vol. VII.—Zoophytes. By James D. Dana, A. M., Geologist of the Expedition. Quarto, 740 pp., and one folio atlas of 61 plates. Philadelphia: Printed by C. Sherman, 1846.

† Corals and Polyps of the North Pacific Exploring Expedition, with descriptions of other Pacific Ocean species. By A. E. Verrill. Proc. Essex Institute, Vols. IV and V; April, 1865, to July, 1866.

labeling the specimens was such as to leave no grounds for excuse in misplacing them, each label being distinctly written, in ink, on a piece of stiff paper, firmly secured to the specimen by copper wire. When the present curator took charge of this collection, he found very many of these original labels still upon the specimens, and in good condition.

In both of these collections the genus *Madrepora* was well represented, but more especially so in that procured by the United States Exploring Expedition. The writer has recently made a careful examination of all the specimens in the collection belonging to that genus, identifying such as were without labels and verifying the identifications of the others. Other portions of the collection will soon be gone over in the same manner, but it has been deemed advisable to present a list of the species of *Madrepora* at once, for the benefit of those who may desire to refer to that part of the collection, or who have an interest in knowing its extent and present condition. In addition to the specimens received from the two naval expeditions, we have included the three Florida and West Indian species, and also one of recent origin from the South Pacific Ocean.

In his "Zoophytes" Professor Dana describes 64 species of *Madrepora*, 54 of which were collected by the exploring expedition. Of the species in the collection of this expedition 48 were described as new. One of the new species, *secunda*, was subsequently united by Professor Verrill with *nobilis* of Dana, and *alces* of Dana is regarded by Pourtalès to be the same as *palmata* of Lamarck. Dana's *deformis* (non Michelin) is called *Dancæ* by Verrill, and his *plantaginea* (non Lamarck) has been named *secale* by Studer. This leaves the number of new species described by Dana as given above, and of this number 46 are still represented by Dana's types (one or more of each) in the collection of the National Museum. Professor Verrill described 6 new species from the collection of the North Pacific Exploring Expedition, specimens of all of which are now in the keeping of this Museum. The total number of species in our collection represented by type specimens is, therefore, 52.

The coral collection made by the British ship *Challenger* from 1873 to 1876 was very rich in species of *Madrepora*, and contained very many of those described by Professor Dana. They have been reported upon during the past year by Mr. John J. Quelch.*

Since the collections of the United States naval expeditions were obtained, comparatively few specimens of *Madrepora* have been received at the National Museum from other sources than Florida and the West Indies. A small but exceedingly fine lot was donated a few years ago by Mr. J. M. Brower, United States consul at the Fiji Islands; it was collected at the island of Levuka, and apparently contains several new

* Report on the reef-corals collected by H. M. S. *Challenger* during the years 1873-76. By John J. Quelch, B. Sc., Lond., late assistant, British Museum; curator of the British Guiana Museum, Georgetown, Demerara. The Voyage of H. M. S. *Challenger*. Zoology, Vol. XVI, Part III, 1886. Quarto, 203 pages, 12 plates.

species, the writer being unable, in fact, to identify more than one of the species with certainty. It has been thought best, however, to defer reference to these species until a more careful comparison can be made with other collections than our own. Two other species of doubtful identity have also been contributed by Dr. W. H. Jones, U. S. N., from Palmyra Island, in the Pacific Ocean.

In the following list the species have been arranged in alphabetical order, without regard to their relations, as affording the most convenient means of reference. A mark of interrogation, thus (?), before the name of a locality indicates that the identity of the specimen is in question; after a locality, that the latter is in doubt. The numbers under which the specimens are recorded in the catalogue books of the National Museum are given in parentheses following each citation of locality and collector.

Genus MADREPORA Linnæus.

1. *Madrepora abrotanoides* Lamarek.

Lamarek, Hist. des Anim. sans Vert., ii, p. 280, 1816.—Dana, Zoophytes, p. 477, pl. 41, fig. 1.—Milne-Edwards, Corall., iii. p. 140.

Fiji Islands (?): U. S. Expl. Exped. (300).

2. *Madrepora acervata* Dana.

Dana, Zoophytes, p. 460, pl. 34, fig. 43.—Quelch, Challenger Reef-Corals, p. 153.

Singapore; U. S. Expl. Exped., type (271).

3. *Madrepora aculeus* Dana.

Dana, Zoophytes, p. 450, pl. 32, fig. 6.—Quelch, Challenger Reef-Corals, p. 160.

Fiji Islands: U. S. Expl. Exped., type (257).

4. *Madrepora appressa* Dana.

Heteropora appressa Ehrenberg, Cor. Roth. Meer., p. 109. *Madrepora appressa* Dana, Zoophytes, p. 457, pl. 31, fig. 8, pl. 34, fig. 3.—Quelch, Challenger Reef-Corals, p. 163.

Singapore; U. S. Expl. Exped. (264).

5. *Madrepora arbuscula* Dana.

Dana, Zoophytes, p. 474, pl. 40, fig. 2.

Sooloo Sea; U. S. Expl. Exped., type (296).

6. *Madrepora aspera* Dana.

Dana, Zoophytes, p. 463, pl. 38, fig. 1.—Quelch, Challenger Reef-Corals, p. 156.

Fiji Islands: U. S. Expl. Exped., type (235).

7. *Madrepora brachiata* Dana.

Dana, Zoophytes, p. 474, pl. 38, fig. 3

Sooloo Sea; U. S. Expl. Exped., type (295).

8. *Madrepora carduus* Dana.

Dana, Zoophytes, p. 464, pl. 36, fig. 2.

Fiji Islands: U. S. Expl. Exped., type (278).

Sooloo Sea; U. S. Expl. Exped. (277).

9. *Madrepora cerealis* Dana.

Dana, Zoophytes, p. 460, pl. 35, fig. 2.—Queleh, Challenger Reef-Corals, p. 153.

Sooloo Sea; U. S. Expl. Exped., type (269).

East Indies; U. S. Expl. Exped., type (270).

10. *Madrepora cervicornis* Lamarek.

Lamarek, Hist. des Anim. sans Vert., ii, p. 281, 1816.—Dana, Zoophytes, p. 479.—Milne-Edwards, Corall, iii, p. 136.—Pourtalés, Illust. Cat., Mus. Comp. Zool., No. IV, p. 84, 1871.

Florida: (3085.)

Light-ship Bank, three miles west of Carysfort Reef; E. Palmer, 1884 (15473, 15474, 15479-15481, 15483).

Garden Key, Tortugas; Capt. D. P. Woodbury (1642).

Tortugas; Col. F. Farquhar (3929); E. Palmer, 1884 (15475-15478, 15482, 15484-15487).

West Indies; (301, 3965); U. S. Fish Comm. Str. Albatross, 1884 (11009, 11010).

Island of Curaçao, Venezuela; U. S. Fish Comm. Str. Albatross, 1884 (7355, 7358, 7362-7365, 7368).

There are several specimens of *Madrepora*, of the type of *cervicornis* and *prolifera*, from both Florida and the West Indies, which the writer has been unable to identify to his satisfaction, and they are not mentioned in this catalogue. As remarked by Pourtalés, these two species are usually more readily distinguished by their general shape and mode of growth, than by the character of the cells, which are exceedingly variable as to size, prominence, and numbers, and intermediate forms between the two are very common in all large collections. In the collection made at the island of Curaçao, by the steamer Albatross, the greater number of specimens undoubtedly belong to *cervicornis*, but some recall *prolifera*.

Among the many specimens sent from Hayti by Mr. J. M. Langston, the majority are typical of *prolifera*, but the same series shows great variation in mode of growth, in the direction of *cervicornis*. Similar variations occur among specimens from Florida, but it would not be safe to change the present status of the species without a more careful study and comparison than appears yet to have been made. For this purpose very large collections would be necessary.

11. *Madrepora conferta* Quelch (?).

Quelch, Challenger Reef-Corals, p. 164, pl. X, fig. 3, 1886.

South Sea Islands; donated by the Hon. H. F. French, 1885 (8923).

There is in the collection a large and very perfect vase-shaped *Madrepore*, which appears to represent this species recently described by Quelch. The exact locality where it was obtained is not known, but it is said to have come from one of the "South Sea Islands." It was presented to the Museum by the late Hon. H. F. French, together with several other corals from the same region.

It is a comparatively symmetrical, shallow, vase-shaped form, with a short, rounded pedicel. The upper surface is slightly oblique, broadly

oval (sub-circular) in outline, the longest diameter measuring about 40 centimeters, the shortest about 35 centimeters. The center is but slightly depressed, or between 5 and 6 centimeters below the highest plane of the surface. From this point the surface rises most rapidly at first, and then forms a gentle, more or less regular, curve to the margins, which are slightly below the upper plane. On all sides of the center the surface is generally convex, but in some places it is slightly concave. The shape is, however, exceedingly regular for this group of corals, and the specimen in question is one of the most beautiful of all the madrepores in the collection.

The pedicel is about 6.5 centimeters in diameter, and spreads very slightly at its base; its height to the point where the upper spreading portion begins is only about 4 centimeters, and in the upper part the interspaces between the main branches are deep and well defined. The calicles extend nearly to the base in some places.

In the thickness of the corallum, in the mode of branching, and in the characters of both surfaces, this specimen agrees very well with the description published by Quelch; but the small solid areas of the lower surface, caused by the coalescing of the branchlets with the branches, which he mentions, are nowhere specially observable. The branchlets of the upper surface are very closely and regularly placed, and are, therefore, separated by narrow interspaces of very regular width. The branchlets are longer, more slender, and less vertical toward the margin, where the structure is naturally more open than elsewhere. The extreme central depressed portion is solid, with a few very small, upright branchlets and prominent calicles, distributed among other crowded calicles which are but slightly exsert.

On one part of the upper surface a stout branch has started up, growing obliquely to a height of 4.5 centimeters. It is closely overgrown with branchlets of the same size and character as those of the plane surface.

The star of the terminal calicles is less distinct than in Quelch's figure, and the lateral calicles are thinner and of a looser texture than indicated by his description. The size and shape of the calicles are, however, the same. While the writer cannot definitely refer this specimen to Quelch's species, it certainly approaches it more closely than it does any other species that has yet been described. In its general shape it somewhat resembles *Madrepora patella* Studer,* but it differs from that species in the character of the branches and calicles, the former not being obliterated on any part of the lower surface.

12. *Madrepora conigera* Dana.

Dana, Zoophytes, p. 440, pl. 32, fig. 1.

Singapore; U. S. Expl. Exped., type (240).

Tahiti, Society Islands; U. S. Expl. Exped. (239).

* Monatsber. der K. Preuss. Akad. der Wissenschaften zu Berlin, 1878, p. 527, pl. 1, fig. 1.

13. *Madrepora convexa* Dana.
Dana, Zoophytes, p. 449.
Singapore; U. S. Expl. Exped., type (236).
Singapore; U. S. Expl. Exped., young specimen (262).
14. *Madrepora cribripora* Dana.
Dana, Zoophytes, p. 470, pl. 31, fig. 1.
Fiji Islands; U. S. Expl. Exped., type (289).
15. *Madrepora cuneata* Dana.
Dana, Zoophytes, p. 437.—Quelch, Challenger Reef-Corals, p. 143.
Fiji Islands; U. S. Expl. Exped., type (334).
16. *Madrepora cuspidata* Dana.
Dana, Zoophytes, p. 485, pl. 42, fig. 1.
Tahiti, Society Islands; U. S. Expl. Exped., types (314, 3969).
17. *Madrepora cyclopea* Dana.
Dana, Zoophytes, p. 439.
Wakes Island, Pacific Ocean; U. S. Expl. Exped., type (231).
(?) Wakes Island, Pacific Ocean; U. S. Expl. Exped. (232, 233).
18. *Madrepora cytherea* Dana.
Dana, Zoophytes, p. 441, pl. 32, fig. 3.—Quelch, Challenger Reef-Corals, p. 165.
Tahiti, Society Islands; U. S. Expl. Exped., types (226-229, 242, 359, 421-423, 3989, 3990, 4004, 4014, 4020).
19. *Madrepora Danæ* Verrill.
Madrepora Danæ Verrill, Bull. Mus. Comp. Zool., i, p. 41, 1864.—Quelch, Challenger Reef-Corals, p. 151.
Madrepora deformis Dana (non Michelin), Zoophytes, p. 484, pl. 43, fig. 1.
Tahiti, Society Islands; U. S. Expl. Exped., type (303).
20. *Madrepora divaricata* Dana.
Dana, Zoophytes, p. 477, pl. 41, fig. 2.
Fiji Islands; U. S. Expl. Exped., type (299).
21. *Madrepora echinata* Dana.
Dana, Zoophytes, p. 464, pl. 36, fig. 1.—Quelch, Challenger Reef-Corals, p. 162.
Fiji Islands; U. S. Expl. Exped., type (275).
22. *Madrepora exigua* Dana.
Dana, Zoophytes, p. 469, pl. 38, fig. 2.
Fiji Islands; U. S. Expl. Exped., type (288).
23. *Madrepora florida* Dana.
Dana, Zoophytes, p. 466, pl. 37, fig. 1.
Fiji Islands; U. S. Expl. Exped., type (282).
24. *Madrepora formosa* Dana.
Dana, Zoophytes, p. 473, pl. 31, fig. 2, pl. 38, fig. 4.
Fiji Islands; U. S. Expl. Exped., types (294, 888).
Sooloo Sea; U. S. Expl. Exped., type (292).
Singapore; U. S. Expl. Exped. (265, 266).
Unknown localities; U. S. Expl. Exped. (293, 911).

25. *Madrepora globiceps* Dana.

Dana, Zoophytes, p. 454, pl. 34, fig. 3.

Tahiti, Society Islands; U. S. Expl. Exped., type (261).

26. *Madrepora gracilis* Dana.

Dana, Zoophytes, p. 482, pl. 41, fig. 3.—Quelch, Challenger Reef-Corals, p. 158.

Fiji Islands; U. S. Expl. Exped., type (333).

27. *Madrepora hebes* Dana.

Dana, Zoophytes, p. 468, pl. 35, fig. 5.—Verrill, Proc. Essex Institute, v, p. 20, 1866.—Quelch, Challenger Reef-Corals, p. 155.

Fiji Islands; U. S. Expl. Exped., types (286, 287).

Tahiti, Society Islands (?); Dr. William Stimpson, North Pacific Expl. Exped. (370).

28. *Madrepora horrida* Dana.

Dana, Zoophytes, p. 472, pl. 39, fig. 2.

Fiji Islands; U. S. Expl. Exped., type (291).

29. *Madrepora humilis* Dana.

Dana, Zoophytes, p. 483, pl. 31, fig. 4, pl. 41, fig. 4.

Fiji Islands; U. S. Expl. Exped., type (332).

Levuka, Fiji Islands; J. M. Brower (3917).

Only one of the original types of this species is now in the collection. It is a small clump, about 10 centimeters in diameter and 6.5 centimeters in greatest height, the longest branch measuring about 5.5 centimeters in length and 1.2 centimeters in thickness at the base. The collection of Mr. Brower, from Levuka, contains a much larger and finer specimen, differing from the former only in its measurements. The greatest spread of the clump is nearly 24 centimeters, the greatest height about 11 centimeters. The base is much thickened so that the longest branch measures only about 6.5 centimeters. The branches are very stout, the largest being about 1.8 centimeters thick at the base; their characters are the same as in the type. The cells are large, the apical measuring 4.5 millimeters across, and the lateral about 2 millimeters midway of the branches, where they are also most prominent, being generally much less exert toward the base.

30. *Madrepora hyacinthus* Dana.

Dana, Zoophytes, p. 444, pl. 32, fig. 2.—Quelch, Challenger Reef-Corals, p. 164.

Fiji Islands; U. S. Expl. Exped., type (246).

31. *Madrepora hystrix* Dana.

Dana, Zoophytes, p. 476, pl. 31, fig. 5, pl. 40, fig. 1.

Fiji Islands; U. S. Expl. Exped., type (293).

32. *Madrepora labrosa* Dana.

Dana, Zoophytes, p. 486, pl. 31, fig. 10, pl. 43, fig. 3.

Sooloo Sea; U. S. Expl. Exped., type (315).

33. *Madrepora nasuta* Dana.

Dana, Zoophytes, p. 453, pl. 34, fig. 2.—Quelch, Challenger Reef-Corals, p. 154.

Tahiti, Society Islands; U. S. Expl. Exped., type (260).

34. *Madrepora nobilis* Dana.

Madrepora nobilis Dana, Zoophytes, p. 481, pl. 40, fig. 3.—Verrill, Bull. Mus. Comp. Zool., i, p. 40, 1864; Proc. Essex Inst., v, p. 20, 1866.—Queleh, Challenger Reef-Corals, p. 150.

Madrepora secunda Dana, Zoophytes, p. 481, pl. 40, fig. 4.

Singapore; U. S. Expl. Exped., type (427).

Singapore; U. S. Expl. Exped., types of *M. secunda* Dana (302, 323).

35. *Madrepora palmata* Lamarek.

Madrepora palmata Lamarek, Hist. des Anim. sans Vert., ii, p. 273, 1816.

Dana, Zoophytes, p. 436, pl. 31, fig. 11.—Pourtalès, Illust. Cat. Mus.

Comp. Zool., No. IV, p. 83, 1871.—Queleh, Challenger Reef-Corals, p. 149.

Madrepora flabellum Lamarek, Hist. des Anim. sans Vert. ii, p. 279, 1816.—

Dana, Zoophytes, p. 438, pl. 31, fig. 13.

Madrepora alces Dana, Zoophytes, p. 437, pl. 31, fig. 12.

Florida; L. Woodbury (225); Captain Pickering (1623, 1624); General Totten (3968); Collector? (4025); E. Palmer (15500).

Carysfort Reef; E. Palmer, 1884 (15498).

Key West; C. L. Hamilton (2424).

Eastern Dry Rocks, near Key West; E. Palmer, 1884 (15496, 15502).

Homasassa; J. W. Milner (4711).

Dry Tortugas; Col. F. Farquhar (3927); E. Palmer, 1884 (15497, 15503)

Garden Key, Tortugas; Capt. D. P. Woodbury (1643).

West Indies; U. S. Fish Comm. Str. Albatross, 1884 (11008).

Saint Thomas; U. S. Fish Comm. Str. Albatross, 1884 (15504).

Hayti; U. S. Consul J. M. Langston (4066, 4069-4071).

Island of Curaçao, Venezuela; U. S. Fish Comm. Str. Albatross, 1884 (7270-7272).

Variety *flabellum*.

Dry Tortugas; E. Palmer, 1884 (15501).

Hayti, West Indies; U. S. Consul J. M. Langston (4067, 4068, 4072).

West Indies (238).

Variety *alces*.

East Indies; U. S. Expl. Exped., type of *Madrepora alces* Dana (237).

36. *Madrepora paxilligera* Dana.

Dana Zoophytes, p. 452, pl. 34, fig. 1.—Queleh, Challenger Reef-Corals, p. 154.

Tahiti, Society Islands; U. S. Expl. Exped., types (247, 249).

37. *Madrepora prolifera* Lamarek.

Lamarek, Hist. des Anim. sans Vert., ii, p. 251, 1816.—Dana, Zoophytes, p.

480.—Milne-Edwards, Corall., iii, p. 139.—Pourtalès, Illust. Cat., Mus.

Comp. Zool., No. IV, p. 84, 1871.—Queleh, Challenger Reef-Corals, p. 149.

Florida:

Dry Tortugas; E. Palmer, 1884 (15490-15492); Col. F. Farquhar (3939).

Garden Key, Tortugas; Capt. D. P. Woodbury (1641).

West Indies: (330, 3967).

Hayti; U. S. Consul J. M. Langston, 1881 (4618, 4620, 4623, 4624, 4627, 4630, 4636, 4637, 4647, 4649, 4650).

See remarks upon this species under *Madrepora cervicornis*.

38. *Madrepora proliza* Verrill.

Verrill, Proc. Essex Inst., v, p. 22, 1866.

Ousima, Japan; Dr. William Stimpson, North Pacific Expl. Exped., types (412, 414).

39. *Madrepora prostrata* Dana.

Dana, Zoophytes, p. 447, pl. 33, fig. 1.—Quelch, Challenger Reef-Corals, p. 163.

Sooloo Sea; U. S. Expl. Exped., type (253).

40. *Madrepora pumila* Verrill.

Proc. Essex Inst., V, p. 23, 1866.

Bonin Islands; Dr. William Stimpson, North Pacific Expl. Exped., type (389).

41. *Madrepora ramiculosa* Dana.

Dana, Zoophytes, p. 463, pl. 35, fig. 4.—Quelch, Challenger Reef-Corals, p. 159.

Fiji Islands; U. S. Expl. Exped., type (274).

42. *Madrepora retusa* Dana.

Dana, Zoophytes, p. 462.—Quelch, Challenger Reef-Corals, p. 153.

Fiji Islands; U. S. Expl. Exped., type (273).

43. *Madrepora robusta* Dana.

Dana, Zoophytes, p. 475, pl. 31, fig. 3, pl. 39, fig. 3.—Quelch, Challenger Reef-Corals, p. 151.

Fiji Islands; U. S. Expl. Exped., type (297).

44. *Madrepora rosaria* Dana.

Dana, Zoophytes, p. 465, pl. 36, fig. 3.—Quelch, Challenger Reef-Corals, p. 162.

Fiji Islands; U. S. Expl. Exped., types (281, 933).

45. *Madrepora secale* Studer.

Madrepora plantaginea Dana (non Lamarek), Zoophytes, p. 459.

Madrepora appressa Dana, var., teste Verrill, Bull. Mus. Comp. Zool., i, p. 42, 1864.

Madrepora secale Studer, Monatsber. d. k. Preuss. Akad. d. Wiss., Berlin, p. 530, 1878.—Quelch, Challenger Reef-Corals, p. 163.

East Indies; U. S. Expl. Exped. (268).

46. *Madrepora securis* Dana.

Dana, Zoophytes, p. 486, pl. 43, fig. 2.—Quelch, Challenger Reef-Corals, p. 148.

East Indies (?); U. S. Expl. Exped., type (304).

47. *Madrepora spicifera* Dana.

Dana, Zoophytes, p. 442, pl. 31, fig. 6, pl. 33, fig. 4.

Singapore; U. S. Expl. Exped., type (244).

Singapore; U. S. Expl. Exped., var. *abbreviata*, Dana (235, 245).

Singapore; U. S. Expl. Exped., variety (234).

48. *Madrepora striata* Verrill.

Verrill, Proc. Essex Inst., v, p. 24, 1866.

Ousima, Japan (?); Dr. William Stimpson, North Pacific Expl. Exped., type (371).

49. *Madrepora subulata* Dana.

Dana, Zoophytes, p. 448, pl. 33, fig. 3.

East Indies; U. S. Expl. Exped., type (256).

50. *Madrepora surculosa* Dana.

Dana, Zoophytes, p. 445, pl. 32, fig. 4, 5.—Quelch, Challenger Reef-Corals, p. 166.

Tahiti, Society Islands; U. S. Expl. Exped., type (251).

Fiji Islands; U. S. Expl. Exped., type (248).

51. *Madrepora tenuis* Dana.

Dana, Zoophytes, p. 451.—Quelch, Challenger Reef-Corals, p. 157.

Fiji Islands; U. S. Expl. Exped., type (259).

52. *Madrepora teres* Verrill.

Verrill, Proc. Essex Inst., v, p. 20, 1866.

Ousima, Japan; Dr. William Stimpson, North Pacific Expl. Exped., type (377).

53. *Madrepora tortuosa* Dana.

Dana, Zoophytes, p. 467, pl. 37, fig. 3.

Fiji Islands; U. S. Expl. Exped., type (284).

54. *Madrepora tubicinaria* Dana.

Dana, Zoophytes, p. 451, pl. 32, fig. 7.—(?) Verrill, Proc. Essex Inst., v, p. 23, 1866.

Fiji Islands; U. S. Expl. Exped., type (258).

(?) Tahiti, Society Islands; Dr. William Stimpson, North Pacific Expl. Exped. (374).

55. *Madrepora tumida* Verrill.

Verrill, Proc. Essex Inst., v, p. 21, 1866.

Hong Kong, China; Dr. William Stimpson, North Pacific Expl. Exped., types (360, 419).

56. *Madrepora turgida* Verrill.

Verrill, Proc. Essex Inst., v, p. 19, 1866.

Loo Choo, China; Dr. William Stimpson, North Pacific Expl. Exped., type (358).

57. *Madrepora valida* Dana.

Dana, Zoophytes, p. 461, pl. 35, fig. 1.

Fiji Islands; U. S. Expl. Exped., type (272).

58. *Madrepora virgata* Dana.

Dana, Zoophytes, p. 471, pl. 39, fig. 1.—Quelch, Challenger Reef-Corals, p. 158.

Fiji Islands; U. S. Expl. Exped., type (290).

59. *Madrepora implicata* Dana.

Dana, Zoophytes, p. 466, pl. 37, fig. 2.

Fiji Islands; U. S. Expl. Exped., type (283).

The original specimen of this species has been discovered since the foregoing was in type.